health of the race, its mothers and the babies, if we would have less sacrifice of the health and happiness of both? Better chance for prenatal care; literature put into the mother's hands; the public health nurse teaching her; the prenatal conference at every Children's Health Center, and prenatal clinics at every hospital which cares for confinement cases, can be easily carried out. A mother should look out on a world proud of what she is contributing to it, and anxious for perfect stock. And in recounting her experiences she should be able to say, "I had so many children and raised them." The City of San Francisco in 1919, excluding still-born registered births, barely replaced its deaths—8375 deaths and 8400 births—so 25 new souls were added by natural law to the population.

There must be a solution if true social service is done, leading through education, better health and better housing to its attainment, and every social agency has a part in the education which will have to precede a further reduction of Infant Mortality.

References.

A few of the references dealing with this subject are:
Carpenter, T. M.: Pub. 216, Carnegie Institution of Washington, 1915.
Benedict & Carpenter: Pub. 261, Carnegie Institution of Washington, 1918.
Benedict, F. G.: A Portable Respiration Apparatus for Clinical Use. Boston Medical and Surgical Journal, v. 178, p. 667, 1918.
Benedict, F. G.: Notes on the Use of the Portable Respiration Apparatus. Boston Medical and Surgical Journal, v. 182, p. 243, 1920.
Hendry, Carpenter & Emmes: Gaseous Exchange with Unpracticed Subjects and Two Respiration Apparatus.
DuBois, E. F.: Calorimetric Methods of Study of Disease. Oxford Medicine, v. 1, p. 617, 1919.
Tissot: J. de physiol et de pathol. gen. v. 6, p. 688, 1904.
Boothby & Sandiford: Technic of Basal Metabolic Rate Determinations for Clinical Purposes (unpublished).
DuBois, E. F.: Metabolism in Exophthalmic Goiter. Arch. Int. Med., v. 17, p. 914, 1916.
Means, J. H.: Hyperthyroidism—Toxic Goiter. Med. Clinics of North America, v. 3, p. 1077, 1920.
Means & Aub.: The Basal Metabolism in Hyperthyroidism. Arch. Int. Med., v. 24, p. 404, 1919.
Means, J. H.: Basal Metabolism in Exophthalmic Goiter. Arch. Int. Med., v. 24, p. 645, 1919.
Sueders, C. W.: The Use of Laboratory Methods in the Diagnosis of Early Hyperthyroidism. Arch. Int. Med., v. 24, p. 432, 1919.
Boothby, W. M.: The Value of the Basal Metabolic Rate in the Treatment of Diseases of the Thyroid. Medical Clinics of North America, v. 3, p. 603, 1919.
McCaskey, S. W.: The Basal Metabolism and Hyperglycemic Tests of Hyperthyroidism. J. A. M. A., v. 73, p. 243, 1919.
McCaskey, S. W.: Basal Metabolism Determinations in General Internal Diagnosis. J. A. M. A., v. 74, p. 927, 1920.
Tompkins, Wearn & Sturgis: Studies on Epinephrin I, II, III. Arch. Int. Med., v. 24, p. 247, 1919.
Geyelin, H. R.: The Carbohydrate Metabolism in Hyperthyroidism as Determined by Examination of Blood and Urine. Arch. Int. Med., v. 16, p. 975, 1915.
Smith, F. M.: Studies on Hyperthyroidism. J. A. M. A., v. 73, p. 1828, 1919.
Kendall, E. C.: The Thyroid Hormone and Its Relation to the Other Ductless Glands. Endocrinology, v. 2, p. 81, 1918.

THE TREATMENT OF INDUSTRIAL DISABILITIES INVOLVING THE SPINAL COLUMN.*

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One needs only study the reports issued by the State Industrial Accident Commission since the year 1913, to realize that injuries to the trunk—and most of these involve the spinal column—rate third in numerical grouping after injuries to the upper extremities and injuries to the lower extremities respectively. Allowing due consideration for the yearly increase in numbers, from better recognition and reporting of these industrial disabilities, the fact remains that their frequency does not decrease or remain stationary.

Furthermore, from the information at hand, it would seem the period of disability from year to year, does not decrease in proportioin to the severity of the injury treated.

These facts produce economic expression in a handicap or limitation of income to the patient and thereby on his family; inefficient work production for the employer and increase in cost of insurance. Sociologically these unfavorable influences are far reaching. How many of us realize the machinery set in motion by these cases of "lame backs"? Should the employee not have the benefit of the best medical treatment when injured while at work?

The importance of immediate correct diagnosis must be emphasized. Too frequently an inaccurate or hasty examination does not reveal the real condition. When the injury is considered of minor concern, less attention is naturally given. An ambulatory state is permitted instead of definite rest of the traumatized part. Every case should be completely controlled and closely observed until, with the necessary methods, the correct diagnosis is made and indicated treatment is well established. More care in the initial consideration of these cases and better training of the physicians handling industrial injuries are essential factors in efficient and correct treatment.

When the industrial surgeon arrives at a broader and more modern view of medical management of the average large manufacturing establishment, he will more fully realize his responsible, far reaching, influential position. Upon his shoulders must rest the burden of the health of the employees. In most cases poor facilities, and thereby greater number of injuries resulting, indicate the failure of the medical advisor to do his duty. That the employer will co-operate and assist in improving the welfare of his workmen is clearly shown by the establishment of first aid stations, the employment of trained nurses, and the installation of medical equipment, et cetera. To a large extent, occupational disabling injuries involve the spinal column. Many of these disabilities are correctable. A large proportion are preventable. Many of the "low back strains," generally passed over as unimportant, are directly due to standing or sitting in faulty positions while at work. It is for the industrial surgeon to point out these faulty working methods and present preventive, or at least curative, measures for the employer's adoption.

The employer must be enlightened, the employees must be educated in preventive medical matters pertaining to their particular industry. An industrial medical atmosphere must be created and efficiently maintained. Strapping a back or applying a plaster jacket does not complete the duties of the industrial surgeon. Should the

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employer not have the benefit of the best medical advice in running his business?

The surgeon seeing an industrial case after treatment has been carried on for some time, fully appreciates the necessity for the employment of the best methods in the initial care of the injury. A deformity may have become fixed, a faulty posture made habitual, the patient's mental attitude distorted, or the real injury passed unrecognized.

Too complete shifting from rigid fixation or support to over activity or non-support, should be supplemented by gradual removal of plaster jacket or brace and graduated physio-therapeutic measures for restoration of function of the involved part. Attention should be given to the importance of correcting the faulty postural habits. Less emphasis should be placed on spinal anomalies,—especially from the patient's standpoint—when they have no bearing on the treatment of the injury. Mental occupation must not be overlooked. Neither should the patient be returned to his former occupation at the end of treatment unless physically able to perform his duties but rather given such work that will not renew his disability. His employer should be informed of the medical recommendation to that effect. Braces or other apparatus to be worn must be useful not impedimentary. When the application of braces is more closely supervised by the surgeon ordering them and less leeway allowed the brace maker, such braces will serve better the purposes intended and be worn more advantageously by the patient.

In a general consideration, injuries affecting the soft tissues are more common, present a greater range of severity, are of less duration and are generally curable. The difficulty in determining the full extent of the injury should stimulate the examining surgeon to his best efforts in effecting a rapid cure. These are the cases that improve slowly unless efficiently managed, have recurrences, develop arthritic conditions and become functionally chronically disabled. Immediate effectual treatment usually produces a cure.

The bone injury group of cases are fewer in number, more disabling at onset, of longer duration, and frequently are permanent. A correct diagnosis is made more readily. Possibly on account of the rather complete immobilization, less arthritic changes occur. Restoration of function is often neglected and delayed because attention is focused on bone repair. A wise use of physio-therapy, such as occupational or mechanico-therapy, is of much value in preserving and improving bodily functioning, and thereby decreases the period of disability and lessens ultimate disabled state.

Anatomical variations, especially common in the lower portion of the spinal column, most frequently complicate the treatment of injuries of the type under discussion. It is essential, in determining the influence these malformations may have on the injury, to be familiar with the normal or near-normal anatomical relations of the parts involved. The value of exhaustive X-ray examinations is most illuminating. Judgment, however, in the interpretation of such findings, must be clear and unbiased. The advisability of treating these complications, necessitating prolonged and expensive hospital care, surgery, apparatus, and a doubtful prognosis, must be thoughtfully considered from the industrial standpoint, and should not be undertaken unless absolutely indicated in the proper treatment of the case.

Osteoarthritis too often complicates prolonged or poorly treated cases. Much relief is obtained and the arthritis arrested by thorough elimination of the infectious foci and intensive physio-therapeutic measures. Early attention to this unavoidable element certainly lessens the ultimate disability.

Functional neuroses appear late as a complication. Every surgeon knows the difficulty in obtaining reasonable results when this condition becomes evident. The best efforts of the surgeon may be frustrated in treating such a case. A money settlement usually "cures" the patient. Efficient early treatment practically eliminates this condition.

It is the purpose of this paper to bring to your attention the importance of correct diagnosis and the advantages of early instituting the most efficient measures in the treatment of industrial disabilities involving the spinal column.

DELAYED ULNAR PALSY FOLLOWING ELBOW INJURY.*

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Recently there has come under our observation a number of cases of unilateral ulnar nerve palsy, due to elbow injuries antedating the oncoming of paralysis by an appreciable interval of time. These cases, at first obscure as to etiology, we have now come to recognize as the delayed type of ulnar palsy following bone injuries involving the region of the internal condyle and causing subsequent pathology in the ulnar nerve in this locality. The striking feature in this type is the long symptom-free interval. Four case histories follow:

Case No. I. Summary: Twenty year interval between injury to elbow and first symptoms of ulnar palsy. Condition thought to be possibly a postural neuritis or beginning amyotrophic lateral sclerosis. Radiographs showed displacement of lower fragment of humerus with new growth of bone in the neighborhood of the trochlear surface. At operation a spindle-shaped neuroma was found at epitrochlea. Neuroma split; a new bed formed for nerve in front of epitrochlea, and protected by a fascia-fat flap. Considerably improved when seen fourteen months later.

R. M. Aged 31. Female. First seen in November, 1915. Patient gave a history of fracture of the right arm at the age of seven. Dating from this injury the elbow has shown some deformity. It is seen that there is slight limitation in flexion with cubitus varus. Other than this deformity no complaint until four years ago, when a numbness was felt first on the ulnar side of the hand and fingers, followed two years later by a weakness of the hand muscles, evidenced by buttoning shoes, using clothes-pins, tucking in bed-clothes and making beds, etc. It was sus-

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